

REMARKS/ARGUMENTS

The amendments set out above and the following remarks are believed responsive to the points raised by the Office Action dated April 28, 2005. Reconsideration is respectfully requested.

Claims 34, 37, 45, 47, 78, and 79 have been amended to more clearly describe the invention. In particular, claim 34 has been amended to refer to culturing a strain of *Cryptothecodinium cohnii* in a nutrient medium containing a compound selected from the group consisting of acetic acid and acetate ions, in general accordance with the language proposed by the Examiner in the Office Action dated December 29, 2004. The claim has also been amended to refer to the *Cryptothecodinium cohnii* consuming the acetic acid or acetate ions as the primary carbon source, based on the Examiners assertion during the interview of April 19, 2005, that the *Cryptothecodinium cohnii* using the acetic acid or acetate ions as the primary carbon source was unclear. No new matter has been added, the basis for the amended claim language may be found within the original specification, claims and drawings.

Claims 47 and 81-82 were rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors, at the time the application was filed, had possession of the claimed invention. Claims 34, 37, 40, 43-50, 74, 76, 78-79, 81 and 82 were rejected under 35 U.S.C. §112, first paragraph, as based on a disclosure which is not enabling. The claims have been amended to improve the form of the claims and more distinctly claim the subject matter which Applicants regard as their invention. Thus, it is respectfully submitted that with these amendments to the claims, the bases for rejection under 35 U.S.C. §112 has now been overcome and should be withdrawn.

Claim 34 was rejected under 35 U.S.C. §103(a) as being unpatentable over Vazhappilly et al. in view of Kyle and duPreez et al. This rejection is respectfully traversed.

According to the Office Action, the rejection is applied to claim 34 to the extent that it is at least ambiguous whether acetic acid is the primary carbon source. Applicants believe that with the amendments to the claims, it is now clear that the *Cryptothecodinium cohnii* consumes the acetic acid or acetate ions as the primary carbon source to synthesize DHA. Applicants respectfully submit that with this ambiguity removed the rejection has been obviated. Furthermore, as stated in the Office Action dated December 29, 2004,

"there would have been no motivation for one of ordinary skill in the art at the time the claimed invention was made to produce docosahexanoic acid by culturing a strain of *Cryptothecodinium cohnii* wherein acetic acid or acetate are provided as the primary carbon source and wherein the process parameters are

controlled in a manner that results in the absence of a stationary phase in the culturing process for the production of DHA".

Applicants strongly agree. None of the cited references disclose or even suggest synthesizing DHA in the absence of a stationary phase. As discussed in the August interview and previous responses, prior to the present invention, and as evidenced by the absence of any teaching in the cited references, it was not known that DHA could be synthesized without the imposition of a stationary phase. Accordingly, there is nothing in any of the cited references that would lead one of ordinary skill in the art to culture *Cryptocodinium cohnii* in a nutrient medium containing a compound selected from the group consisting of acetic acid and acetate ions, where the *Cryptocodinium cohnii* consumes the acetic acid or acetate ions as the primary carbon source to synthesize DHA and where the culturing process parameters are controlled in a manner that results in the absence of a stationary phase during the culturing process.

With respect to the assertion in the present Office Action that Kyle adequately demonstrates the production of DHA with a strain of *C. cohnii* wherein a carbon source was supplied continuously and the cells were harvested in the substantial absence of a stationary phase, Applicants respectfully disagree. The imposition of a stationary phase, as is known to those skilled in the art, may comprise creating a nutrient deficiency, e.g., a nitrogen deficiency, in the culture which induces the production of DHA in the microorganism. As discussed at the interview of August 4, 2004, and addressed in the Response filed August 6, 2004, Kyle teaches that production of the single cell oil is induced by the imposition of a stationary phase. For example, Kyle discloses "[p]roduction of the single cell oil is induced in the dinoflagellates by the imposition of a nitrogen deficiency" (col. 5, lines 23-25). According to Kyle such deficiencies are caused by providing YE in a limiting amount such that the medium runs out of YE while available glucose remains (col. 5, lines 25-27). Therefore, in the Example of Kyle, which the Office Action relies upon, a stationary phase is induced when glucose continues to be supplied to the culture while YE ceases to be supplied (i.e., glucose was added after 30 hours and for the next 42 hours, while YE was only added at hour 6 and over the next 48 hours). Accordingly, the disclosure of Kyle clearly teaches, and the Example clearly shows, that a stationary phase is induced to synthesize DHA. Since all of the other references also fail to even suggest synthesizing DHA in the absence of a stationary phase, *prima facie* obviousness has not been established, and the rejection should be withdrawn.

For the reasons set forth above, reconsideration of the rejections is respectfully requested.

In view of the amendment and remarks recited herein, the application is considered in good and proper form for allowance, and the Examiner is respectfully requested to pass this application to issue.

If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,


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SDS:yes

Amendment or ROA - Final (Revised 4/18/05)